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10/814,408	03/31/2004	James R. Lattner	2002B139/2	5396

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EXAMINER	
LEUNG, JENNIFER A	
ART UNIT	**PAPER NUMBER**
1764	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/814,408	LATTNER, JAMES R.	
	Examiner	Art Unit	
	Jennifer A. Leung	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24 and 30-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24 and 30-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment submitted on December 21, 2006 has been received and carefully considered. Claims 1-23 and 25-29 are cancelled. Claims 24 and 30-33 are under consideration.

Claim Rejections – 35 U.S.C. 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 24 and 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirsch et al. (US 2,892,773) in view of Hofferber et al. (US 4,092,722) and Atkinson et al. (US 3,213,014).

Regarding claims 24 and 33, Hirsch et al. (FIG. 1) discloses an apparatus comprising:

a feed line (residual hydrocarbon charge lines **30**) communicating with a riser reactor feed inlet (inlet lines **12**) to a riser reactor (reactor **10a**, **10b**), the riser reactor further comprising a riser reactor outlet (outlet lines **14**) for riser reactor effluent;

a preheater (not shown) through which the feed line **30** inherently passes (i.e., "... the reactors **10a** and **10b** are maintained at a temperature.., by *suitable preheating of the residual oil charged to the unit...*" column 5, lines 31-35);

a disengaging vessel (hopper **16**) receiving the riser reactor effluent from lines **14**, the disengaging vessel **16** comprising a disengaging vessel outlet (via line **20**) at an upper portion of the vessel for removing vapor;

a catalyst circulation line **26**, **26a**, **26b** running downward from a lower portion of the disengaging vessel **16** to a lower portion of the riser reactor **10a**,**10b**;

a regenerator **40** comprising a lower inlet (line **42**) for introducing a regeneration medium, an

upper outlet (line **44**) for regenerator flue gas, said regenerator **40** further comprising a first catalyst transport line (standpipe **38**, communicating with line **59**) running downwardly from a lower portion of the disengaging vessel **16** to a regenerator catalyst inlet, and a second catalyst transport line (well **53**) extending downwardly from a regenerated catalyst outlet and intersecting with a lift gas riser (defined by transfer line **58**); said lift gas riser **58** having an upper outlet at the disengaging vessel **16** and a lower lift gas inlet (line **64**);

a regenerator catalyst circulating control valve **60** controlling the passage of catalyst from the regenerated catalyst outlet of regenerator **40** to said lift gas riser **58**; and

a catalyst circulation control valve (i.e., slide valves **28a**, **28b**) controlling the circulation of catalyst from the disengaging vessel **16** to the riser reactor **10a,10b**.

Although Hirsch et al. is silent as to the preheater being of the type that uses a flowing fluid heating medium for at least partially vaporizing the feed, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select such a preheater for vaporizing the feed in the apparatus of Hirsch et al., on the basis of suitability for the intended use, because the Examiner takes Official Notice that the use of preheaters having a flowing fluid heating medium (e.g., steam) for vaporizing feeds is well known in the art of heat exchange, and it has been held that the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt 152* USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

In addition, although Hirsch is silent as to the regenerator catalyst circulating control valve **60** having means being manipulated as a function of the riser reactor **10a,10b** temperature, it would have been obvious for one of ordinary skill in the art at the time the invention was made

to provide a control valve having means for manipulating the regenerator catalyst circulating control valve **60** as a function of the riser reactor **10a,10b** temperature in the apparatus of Hirsch, because controlling the flow of regenerated catalyst from the regenerator to the riser reactor according to a measured temperature of the riser reactor allows for the automatic maintenance of an approximately constant temperature both in the riser and in the reactor vessel or regenerator bed, as taught by Hofferber et al. (column 2, lines 20-33).

Invoking 35 U.S.C. 112, sixth paragraph, Applicants, as best understood, have defined "a regenerator catalyst circulation control valve means for controlling the passage of catalyst from said regenerated catalyst outlet to said lift gas riser" as comprising a control valve **48** in communication with a temperature sensor **46** via a temperature controller **TC 30** (see Figure 1), and equivalents thereof. The modified apparatus of Hirsch would similarly comprise such means, since Hofferber et al. (column 4, line 30 to column 5, line 65; FIG. 1) teaches that the automated control of catalyst circulation is achieved by using a control valve **9** in communication with a temperature sensor (thermocouple **13**) via a temperature controller.

In addition, although Hirsch is silent as to the catalyst circulation control valve **28a,28b** having means being manipulated as a function of the difference in pressure between an upper portion of the riser reactor **10a,10b** and a lower portion of the riser reactor **10a,10b**, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a control valve having means for manipulating the catalyst circulation control valve **28a,28b** as a function of the different in pressure between an upper portion of the riser reactor and a lower portion of the riser reactor in the apparatus of Hirsch, because the differential signal obtained from the pressure sensors makes it possible to calculate the total feed material flow rate through the riser, thereby automating the control of catalyst flow to the riser, as taught by

Atkinson et al. (see column 3, lines 1-6).

Invoking 35 U.S.C. 112, sixth paragraph, Applicants, as best understood, have defined "a catalyst circulation control valve means for controlling circulation of catalyst from said disengaging vessel to said riser reactor" as comprising a control valve **44** in communication with pressure sensors **40** and **42** via a pressure controller **dPC 38** (see Figure 1), and equivalents thereof. The modified apparatus of Hirsch would similarly comprise such means, since Atkinson et al. (see Figure) teaches that the automated control of catalyst circulation is achieved by using a catalyst circulation control valve **17** that is controlled by a pressure controller that integrates readings taken from an upper riser pressure sensor **50U** and a lower riser pressure sensor **50L**.

Regarding claims 30-32, as seen in FIG. 1 of Hofferber, temperature sensor **13** is located along a portion of the riser reactor **3**, which appears to be at a point lying within the range of from about 30% to about 40% of the riser reactor length, as measured from the feed inlet **4** of the riser reactor **3**, or at a location between about 20% to about 80% the axial length of the reactor **3**. Although these range values are not specifically stated in the disclosure, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select a suitable location for the temperature sensor in the modified apparatus of Hirsch et al., on the basis of suitability for the intended use, because the shifting of location of parts is obvious, and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233.

Response to Arguments

3. Applicant's arguments filed December 21, 2006 have been fully considered, but they are not persuasive. Applicants (beginning at the last paragraph on page 4 and ending at the first paragraph on page 6) argue that Hirsch fails to disclose the control valve structures being

claimed, with said control valve structures now being recited as "means plus function" limitations.

The Examiner respectfully disagrees. Firstly, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Secondly, in the instant case, the modified control valves of Hirsch (as modified by the secondary references to Hofferber and Atkinson) structurally meet the means-plus-function limitations set forth in the claims.

Invoking 35 U.S.C. 112, sixth paragraph, Applicants, as best understood, have defined "a regenerator catalyst circulation control valve means for controlling the passage of catalyst from said regenerated catalyst outlet to said lift gas riser" as comprising a control valve **48** in communication with a temperature sensor **46** via a temperature controller **TC 30** (see Figure 1), and equivalents thereof. The modified apparatus of Hirsch would similarly comprise such means, since Hofferber et al. (column 2, lines 20-33; column 4, line 30 to column 5, line 65; FIG. 1) teaches that the automated control of catalyst circulation is achieved by using a control valve **9** in communication with a temperature sensor **13** via a temperature controller.

Furthermore, invoking 35 U.S.C. 112, sixth paragraph, Applicants, as best understood, have defined "a catalyst circulation control valve means for controlling circulation of catalyst from said disengaging vessel to said riser reactor" as comprising a control valve **44** in communication with pressure sensors **40** and **42** via a pressure controller **dPC 38** (see Figure 1), and equivalents thereof. The modified apparatus of Hirsch would similarly comprise such means, since Atkinson et al. (column 3, lines 1-6, and Figure) teaches that the automated control of catalyst circulation is achieved by using a catalyst circulation control valve **17** that is

controlled by a pressure controller that integrates readings taken from an upper riser pressure sensor **50U** and a lower riser pressure sensor **50L**.

Applicants (at page 6, second paragraph) further argue that Hirsch fails to disclose the claimed limitation of,

> "a second catalyst transport line extending downwardly from a regenerated catalyst outlet on the regenerator and intersecting with a lift gas riser, *said lift gas riser having an upper outlet* at said disengaging vessel and a lower lift gas inlet." (with emphasis added).

Applicants argue that, in contrast, Hirsch discloses *a lift gas riser having a lower outlet* at said disengaging vessel, since the regenerated catalyst transfer line **58** has an outlet at the lower portion of the hopper **16**.

The Examiner respectfully disagrees and maintains that the apparatus of Hirsch reads on the language of the claim. In particular, the claim currently recites, "said lift gas riser having an upper outlet", meaning that the lift gas riser has an outlet at *its* upper portion. Hirsch discloses this claimed feature because the outlet of the lift gas riser **58** is at the top of the lift gas riser **58**. It is noted that the features upon which applicant relies (i.e., said lift gas riser having an outlet *at the upper portion of the disengaging vessel*) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding the combination of Hirsch with the secondary references to Hofferber and Atkinson, Applicants (at page 6, third paragraph) argue that,

> "... Applicants cannot find, and the Examiner has not offered anything to suggest that such a general disclosure would motivate one of ordinary skill in the art to modify Hirsch's control valves to include the structure claimed by Applicants."

The Examiner respectfully disagrees. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In the instant case, one having ordinary skill in the art at the time the invention was made would have been motivated to modify the control valves of Hirsch according to the teachings of Hofferber and Atkinson because,

Hofferber teaches that controlling the flow of regenerated catalyst from the regenerator to the riser reactor according to a measured temperature of the riser reactor allows for the automatic maintenance of an approximately contest temperature both in the riser reactor and in the reactor vessel or regenerator bed, (see column 2, lines 20-33); and

Atkinson teaches that the differential signal obtained from the pressure sensors makes it possible to calculate the total feed material flow rate through the riser, thereby automating the control of catalyst flow to the riser, (see column 3, lines 1-6).

Furthermore, it has been held that the provision of mechanical or automated means to replace manual activity merely involves ordinary skill in the art, *In re Venner* 120 USPQ 192 (CCPA 1958); *In re Rundell* 9 USPQ 220 (CCPA 1931).

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer A. Leung
March 11, 2007

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